REMARKS

Claim 1 has been amended. New claims 12, 13 and 14 have been presented. The characteristics of amended claim 1 and new claim 12 are supported by the application as filed (see application, claim 2 and page 3, lines 7 to 10, "[...] if those signals have different wavelengths"). New claims 13 and 14 are supported by the application as filed and correspond to the combination of previous claim 1 with respectively claim 6 and claim 5.

Amended claim 1 requires that the optical signal processor device comprise "at least a portion of the means for optically transmitting an information-carrying signal extending between the two divertor means". It is believed that same should provide the missing part of the means for optical transmitting an information carrying signal necessary to make sense of the claims, as suggested in paragraph 3 of the Office Action.

Claims 1-3 and 11 have been rejected under 35 USC 102(b) as anticipated by Christodoulides. Christodoulides discloses, in connection with Figure 12, an optical device 66 arranged for being fitted to means (column 6, lines 41-42, "first fiber section 68 and a second fiber section 70") transmitting an information-carrying signal S. Christodoulides teaches a device for suppressing backscattered signals which comprises an optical propagation medium (optical fiber 72) arranged in parallel with the optical transmission means (68, 70, 74) comprising an isolator (80) and a highpass filter (82), this device comprising circulators (62) and (64). However, applicant disputes that circulators (62) and (64) and the discriminating means (72, 80, 82) disclosed in Christodoulides anticipate claim 1, as amended.

Claim 1, as amended, requires that the divertor means be arranged:

(1) for connecting in parallel at two connection points, the optical propagation medium to the optical transmission means, and

(2) for diverting to this optical propagation medium, any signal propagating in the opposite direction of the information-carrying signal in the optical transmission means.

Christodoulides fails to disclose a divertor means with above noted characteristics, now required by claim 1, as amended.

Christodoulides discloses a device (66) comprising two circulators (62) and (64) as well as two division multiplexers (76) and (78). However, none of those elements anticipates the divertor means as now defined in claim 1.

As regards circulators (62) and (64) (see Figure 12, Christodoulides), applicant disputes that circulators (62) and (64) would form the divertor means required by claim 1. To the contrary, in Christodoulides, circulators (62) and (64) are not arranged for connecting in parallel the optical propagation medium (72) to the optical transmission means (68, 70, 74). In fact, circulators (62) and (64) are connected only to the optical transmission means (70, 68, 74) and not to the optical propagation medium (72).

Accordingly, circulators (62) and (64) do not anticipate the divertor means defined in claim 1, as amended.

Christodoulides also teaches two wavelength division multiplexers (76) and (78) (see Figure 12, Christodoulides) which are arranged for connecting in parallel, at two connection points, the optical propagation medium (72) to the optical transmission means (68, 70, 74). However, applicant disputes that either of the wavelength division multiplexers (76) and (78) form the divertor means defined in claim 1, as amended.

Indeed, those division multiplexers are not able to divert to a first optical path (the optical path 72 or the optical path 74), any signal propagating in the opposite direction of an information carrying signal intended to be propagated in the optical transmission means by passing through a second optical path (the optical path 74 or the optical path 72). Contrary to the requirements of claim 1, as amended, a wavelength division multiplexer is able to discriminate signals with different wavelengths but is not able to discriminate signals with different propagation directions.

Further, it is well known that the double Rayleigh scattering has the same wavelength as the one of the signal S (*see application, page 2, line 36 to page 3, line 3*), and the signal pump has a wavelength which is different from the ones of the signal S and the double Rayleigh scattering signals (*for example, the input signal S and the double Rayleigh scattering signal have a wavelength of 1550 nm and the pump signal P has a wavelength of 1450 nm, see Christodoulides, column 1, lines 17-19*).

It appears clearly in Christodoulides that the division multiplexers (68, 70, 74) are arranged for diverting the input signal S and the double Rayleigh scattering signal in a first optical path and the pump signal in a second optical path. However, they are inherently unable to divert any back-propagated signal with different wavelengths to an only optical path, such as, for example, the optical transmission medium (72).

Therefore, Christodoulides does not disclose divertor means for diverting to an only optical path (72 or 74) any back-propagated signal and this, whatever the propagation directions of the signals in the device 66.

Claim 1, as amended, requires that the device includes wavelength discrimination means for discriminating between a pump signal intended to be back-propagated in the

optical transmission means and a Rayleigh backscattering signal, those signals being diverted by the divertor means to the optical propagation medium, said discrimination means being connected to the optical propagation medium, between the two connection points, to suppress the Rayleigh backscattering signal by allowing only the pump signal to pass.

Christodoulides does not disclose the discrimination means defined in claim 1, as amended. In Christodoulides, the fiber section (72) comprises an isolator (80) and an optical filter (82) which components are really different from the wavelength discrimination means defined in claim 1. The isolator 80, as it is well known, is able to suppress signals propagating in one direction and to pass only signals propagating in the opposite direction. Thus, isolator 80 is not able to discriminate signals having the same propagation direction as a pump signal and a Rayleigh backscattering signal. (*see Christodoulides, column 6, lines 45-48, "an optical isolator 80 [...] to prevent reflected portions of signal S [...] from propagating in the reverse direction"*).

Filter 82 is a high-pass filter. As the wavelength of a Rayleigh back-scattering signal is necessarily higher than the one of a pump signal, the high-pass filter is not able to suppress the signal Rayleigh without suppressing the pump signal. In the present application, the wavelength discrimination means are able to suppress at least the signal having the highest wavelength (which is the signal Rayleigh), whereas in Christodoulides, the filter 82 is able to suppress only the signals having wavelengths lower than the cut-off frequency of the filter (which is preferably "*immediately below the lowest frequency input signal*", see Christodoulides, column 2, lines 1 to 8).

Therefore, Christodoulides does not teach discriminating means as defined in claim 1, as amended, whatever the propagation directions of the signals in the device 66.

Thus, for the reasons indicated above, the circulator means and the discriminating means disclosed in Christodoulides do not anticipate claim 1, as amended.

Claim 1, as amended, is believed to distinguish over the reference as set forth above and therefore the rejection of claim 1 under 35 USC § 102 should be withdrawn. Therefore, claims 2-10, dependant on claim 1, are also allowable, since they include all the limitations of claim 1, as amended.

With regard to claims 3 and 4, rejected under 35 USC 103(a) as unpatentable over Christodoulides in view of Aina, it is noted that Aina does not teach the elements noted above as lacking in Christodoulides

Claims 11, 12 are believed to be patentable for the same reasons.

Further, the subject matter of new claims 13 and 14 is also considered to be patentable, as set forth in paragraph 10 of the Office Action.

Respectfully submitted,

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